Important Advances in Clinical Medicine

Epitomes of Progress—General Surgery

The Scientific Board of the California Medical Association presents the following inventory of items of progress in General Surgery. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in General Surgery which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on General Surgery of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to: Division of Scientific and Educational Activities, California Medical Association, 731 Market St., San Francisco, CA 94103

Evaluation of Lower Extremity Arterial Insufficiency with an Ultrasound Flow Meter

THE DOPPLER ultrasound flow velocity meter provides a simple noninvasive technique for assessing the arterial status of an extremity. The instrument produces an audible sound which varies with the velocity of red cells passing through the narrow beam of ultrasound produced by the probe.

For quantitative evaluation blood pressure measurements are made with the cuff applied at thigh, upper calf and ankle levels. The flow probe is placed over the dorsalis pedis or the posterior tibial artery and used as a sensitive stethoscope to determine systolic pressures. The values are compared with the brachial artery pressure measured with the flow probe. The ratio of ankle to brachial pressure in normal subjects is over 1.0. Lower extremity occlusive disease produces decreased values. In patients with intermittent claudication, the average ratio is 0.6; in those with pain at rest or gangrene, ratios are below 0.3. The drop in pressure between the upper and lower leg is an indication of the level of obstruction.

Measurement of ankle pressures before and immediately after exercise yields additional information, especially in early stages of disease. After five minutes of exercise no change in ankle pressure is found in normal subjects, while in patients with intermittent claudication there is a significant drop. The amount of decrease below resting pressure and the time required for recovery are guides to the severity of obstruction.

This simple technique is useful for initial evaluation of occlusive disease, for documentation of progression and for postoperative follow-up.

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REFERENCES

Yao JST, Bergan JJ: Application of ultrasound to arterial and venous diagnosis. Surg Clin North Am 54:23-28, Feb 1974

Carter SA: Response of ankle systolic pressure to leg exercise in mild or questionable arterial disease. N Engl J Med 287:578-582, Sep 1972

Portal Hypertension in Children

EXTRAHEPATIC PORTAL VEIN THROMBOSIS is the most common cause of portal hypertension in children. In a recent study, bleeding episodes occurred in 80 percent of patients with this disorder within the first six years of life and in more than